



CAT[®] TECHNOLOGY

LOOKING TO INCREASE

YOUR PRODUCTIVITY & PROFIT?



TAKE A HARD LOOK AT HOW TECHNOLOGY CAN HELP YOU DO THE WORK

A recent study of tech adoption among some of the leading engineering construction companies in the U.S. lends insight into the industry mindset toward technology adoption of all kinds:

- **Nearly 80% of contractors** felt that the biggest benefit from successful tech implementation is that it leads to better project team coordination and collaboration.
- **Just under 50% indicated** that better identification of errors was a major impact of tech adoption.
- **Around 44% of contractors** felt that it increased the quality of work, while 40% said tech helps increase the speed of work and automate mundane tasks.

In the current construction environment, every company is looking for ways to gain efficiency and reduce costs. What makes it challenging are an ongoing shortage of skilled operators and ever increasing operating costs. Equipment manufacturers have responded to this situation with more integrated machine control technologies to help you improve the accuracy and confidence of operators, which speeds job completion and eliminates rework.

Combine machine control technology with connectivity and the data from your fleet, and you can control maintenance and repair costs as well as manage your fleet more effectively. In a nutshell, technology empowers you to work your bottom line not only from the revenue side but from the cost management side as well.



WHAT CAN YOU EXPECT FROM MACHINE CONTROL TECHNOLOGIES?



MACHINE PRODUCTIVITY INCREASES 10 – 40%

Productivity gains depend on the type of machine and the application, but because increased accuracy requires less operator effort, more work gets done. Machine technology for grading, compacting and loading on various types of equipment is available. According to Corey Mikell, Operator, Eagle Excavation: “Production efficiency is way higher because you get the job done in half the time.”



OPERATOR EFFICIENCY INCREASES 10 – 20%

Operator efficiency improves as technologies help them operate more accurately and avoid rework. As technologies become more integrated into machines, the learning curve decreases and any operator’s skill level is enhanced. With the introduction of the 320 Next Generation Excavator, Caterpillar reported that integrated machine technology, including Cat® Grade with 2D, Grade with Assist and Payload, increased operating efficiency by up to 45%.



WHAT CAN YOU EXPECT FROM MACHINE CONTROL TECHNOLOGIES?



FUEL SAVINGS 20 – 50%

Fuel savings come from completing jobs faster (less run time) and in some cases by being able to do the work with fewer machines. Technology also helps operations control idle time. Some industry experts estimate idle time at 40-50% of run time. Because technology helps complete jobs in less time as well as helps operations monitor fuel consumption, it reduces fuel burn significantly.



REDUCTION IN REWORK 30 – 50%

With the increased precision technology brings, job specifications are reached more accurately with fewer passes and less time to correct work that doesn't meet job requirements. This is particularly valuable on jobs with grading or compacting specifications that must be checked by another party because operators get it right the first time. According to Jeff Weaver, Superintendent, Brad Cole Construction: "3D grade control definitely speeds up production. It gives our operators the advantage of making one pass instead of three or four passes."

But just increasing productivity isn't necessarily going to boost your profit on a job. Monitoring the condition of equipment, controlling maintenance and repair costs and maximizing uptime and utilization are all key to making the most on every project. Telematics data from your machine, which includes fuel, idle, productive work hours and a wealth of other information, can help you get the biggest return on every productive work hour. And, with mixed fleet solutions available, managing an entire fleet from one central data source not only makes fleet management easier but also more efficient.



MACHINE TELEMATICS DATA TELLS YOU HOW TO KEEP PRODUCTIVITY & PROFIT ON TRACK

The data generated by all the machines on your site tells a story. Analysis of that data can reveal key areas for improvement. Here are some of the benefits you can gain by studying the information generated by the equipment on your worksite.

INCREASED UPTIME

As companies get more comfortable with technology, they acquire more detailed data, often through fault code alerts, which are emails or text messages delivered when a machine is working outside a predetermined set of parameters. Typical fault code alerts notify an owner about engine over-speeding, high-speed directional shifts, temperature changes and variances in pressure. These alerts can point to needed maintenance and repairs that can be made before a component fails. Using this information reduces unscheduled machine downtime and equipment repair costs.

“ It’s a game-changer: better measurements and better roads at a lower cost. ”

Don Taylor, Project Manager, McAnich Corp.

OPTIMIZED ASSET UTILIZATION

With accurate data about the amount of work machines are doing, it’s easier to identify underutilized assets. When possible, this equipment can be put to work on other projects, reducing the need for rental machines. Precise data about machine utilization can also be used to determine the best mix of rental and owned assets, forecast future equipment needs, plan capital expenditures and financing as well as assess the viability of selling underused assets.

IMPROVED BIDDING ACCURACY AND COMPETITIVENESS

One U.S. construction company is submitting tighter, more competitive bids, thanks in large part to the fuel data being captured from on-board systems. A project manager says it was routine practice to pad the fuel numbers in the past — just in case. But now he says, “We can go in and look and know exactly how many gallons per hour (the equipment) burns. It helps us get our bids closer and be more competitive.”



MORE ADVANCED MACHINE TECHNOLOGY ADDS EVEN MORE

Construction is realizing how technology brings greater productivity, increased uptime and more cost control to the industry. These gains are real and sustainable. In an effort to bring even greater levels of efficiency to customer jobsites, Caterpillar offers a range of automated, operator-assist and remote-control technologies for numerous applications. These advancements not only add to productivity but increase operator awareness and add to jobsite safety as well.

Cat Command, a line of remote-control products, allows operators to run machines away from hazardous environments, adding to safe production. Fully autonomous construction machines are under development at Caterpillar. The first to launch will be a fully autonomous soil compactor.

There is no doubt that technology is transforming the way we communicate, the way we learn, the way we drive and the way we work. Don't get left behind. [Visit **cat.com/technologyforconstruction**](https://cat.com/technologyforconstruction) to take a closer look at what technology can do for you, or talk to your Cat dealer today about technology products and services.